

Innovation & Policy

Diffusion and Use of Genomic Innovations in Health and Medicine Workshop

IOM - Washington D.C.
Tuesday, December 4, 2007

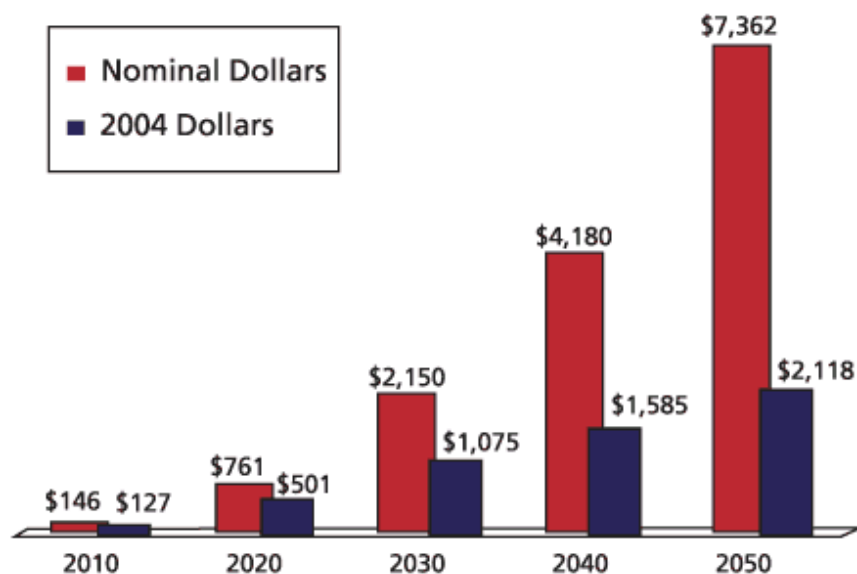
Kevin Schulman, MD, MBA
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Duke University Medical Center



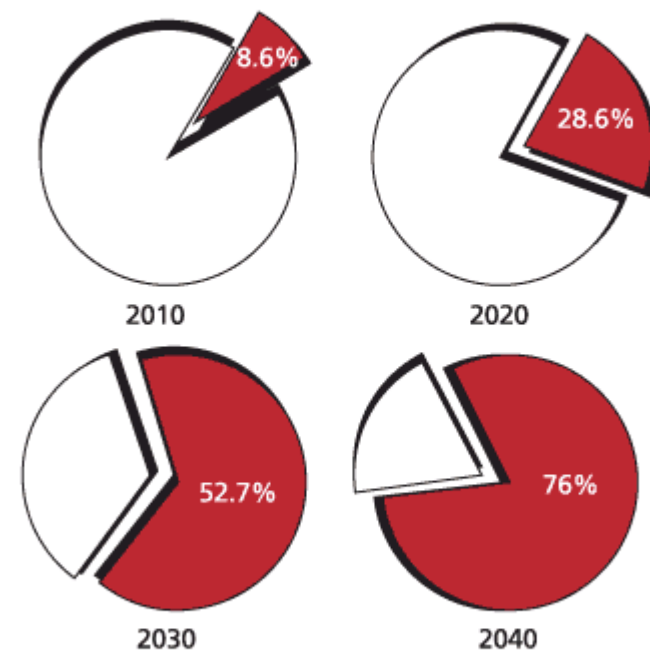
Duke Clinical Research Institute
DUKE UNIVERSITY MEDICAL CENTER

FIGURE 1
Annual Cash Flow Deficits in
Social Security and Medicare
 (Billions of dollars)



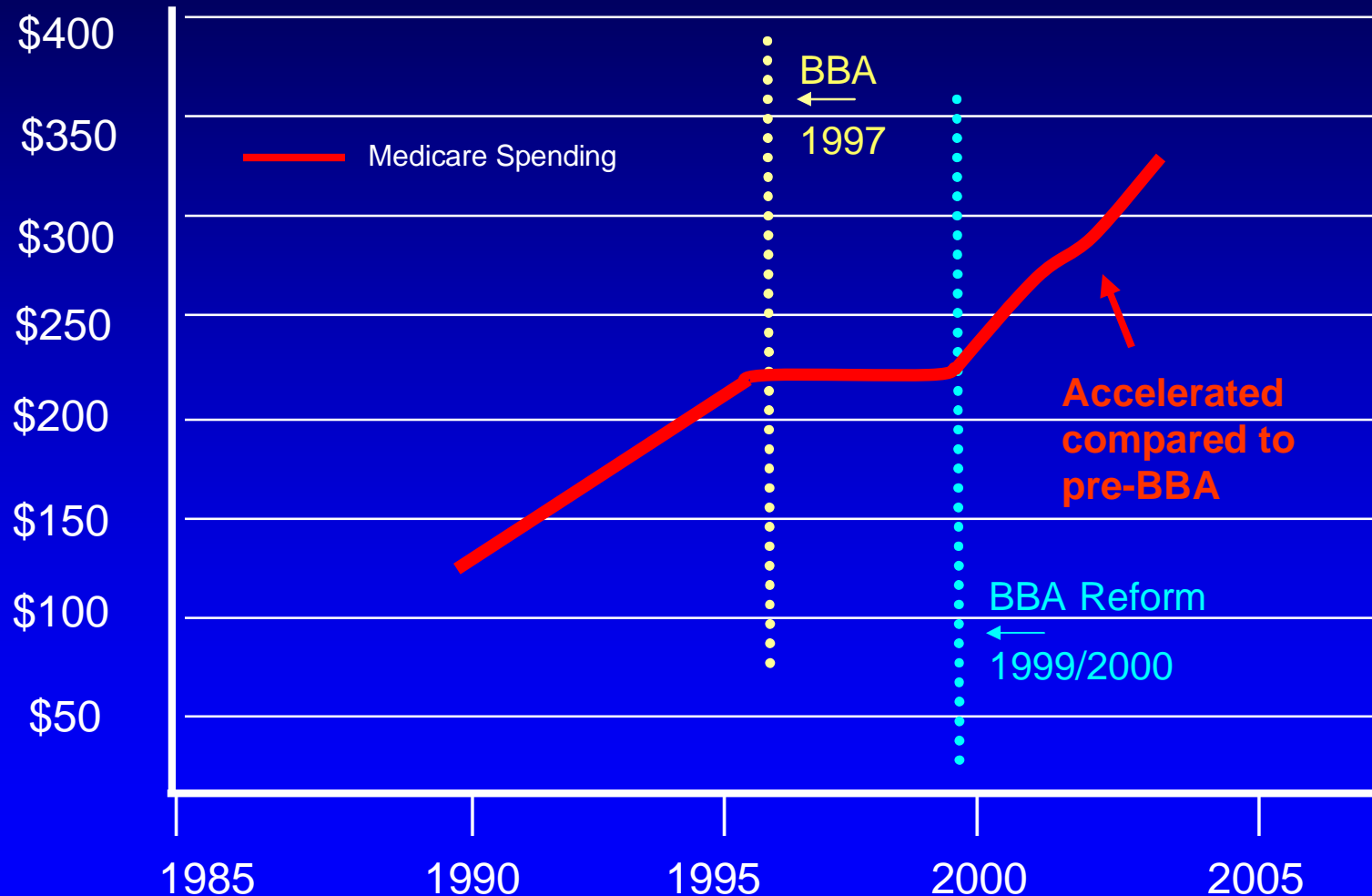
Source: 2004 Annual Reports of the Board of Trustees of Social Security and Medicare

FIGURE 2
Percent of Federal Income
Tax Revenues Needed to Fund
Social Security and Medicare Deficits



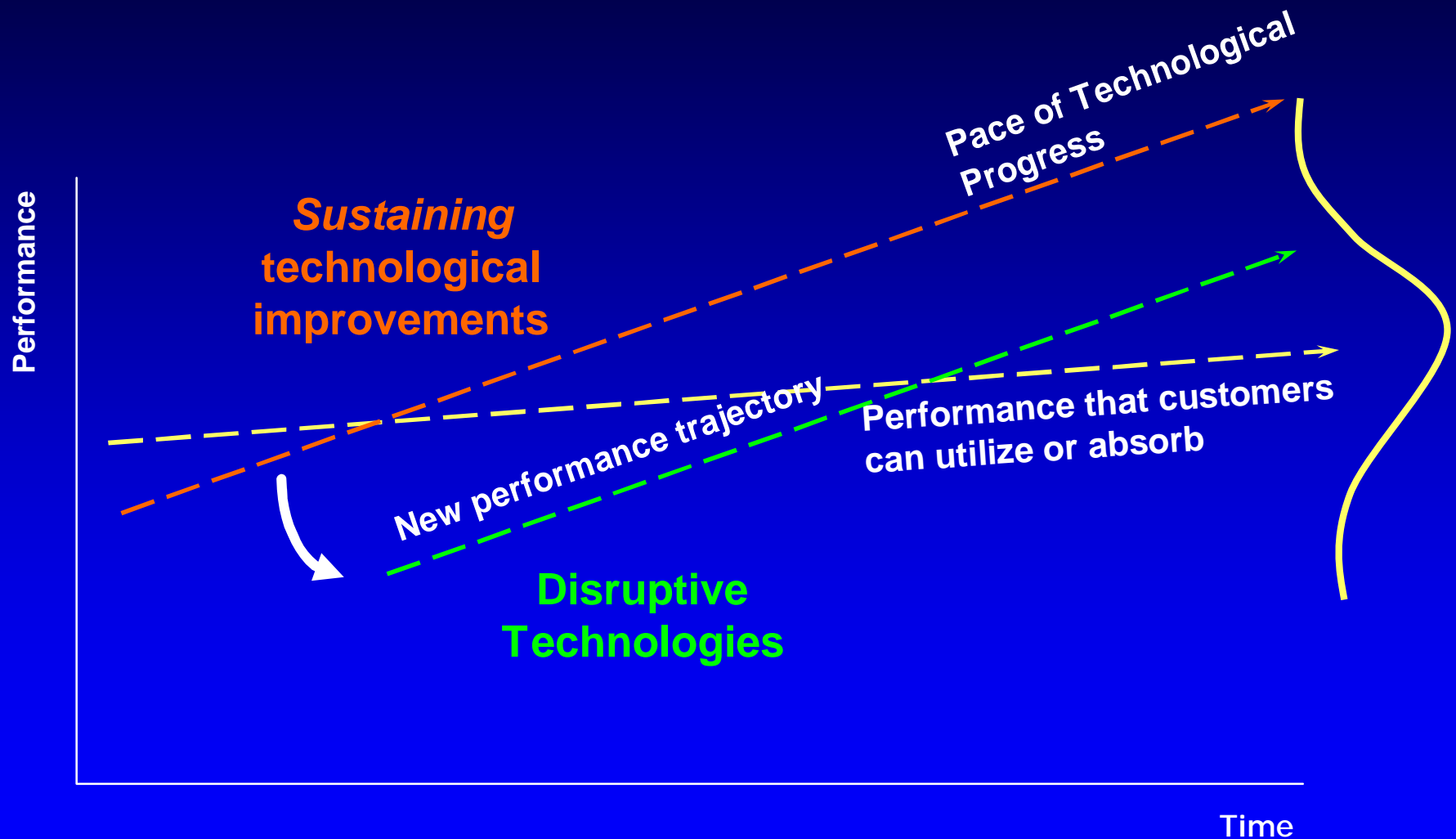
Sources: Andrew J. Rettenmaier and Thomas R. Saving Ph.D., "The 2004 Medicare and Social Security Trustees Reports," National Center for Policy Analysis, Policy Report No. 266, June 2004; and the 2004 Annual Reports of the Board of Trustees of Social Security and Medicare.

Policy Response: A Budget Freeze (How Do Markets Respond?)



Year	\$US (billions)
1990	\$110.9
1995	\$184.2
1996	\$200.3
1997	\$213.6
1998	\$213.4
1999	\$213.0
2000	\$221.8
2001	\$244.8
2002	\$265.7
2003	\$280.8
2004	\$308.9
2005	\$336.4

Innovation: How Markets Respond



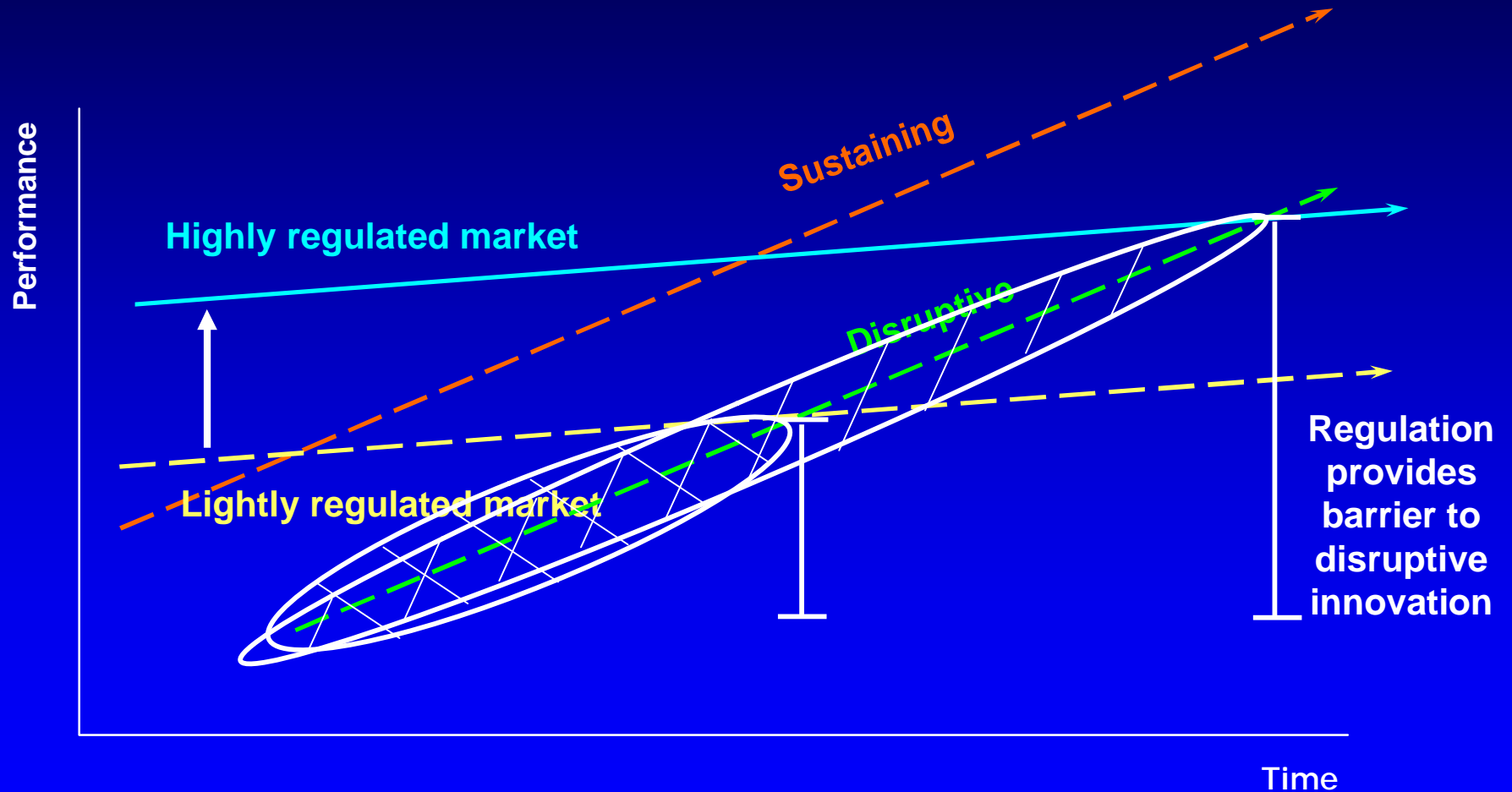
Innovation: How Markets Respond

“...as a rule the new does not grow out of the old but appears alongside of it and eliminates it competitively...”

-Joseph A. Schumpeter, *The Theory of Economic Development* (1911)

- In most markets, technology & organizational innovation drive cost and quality improvement

Disruptive Innovation in Health Care



Definitions

innovation [in-uh-vey-shuh n] –noun

1. something new or different introduced
2. the act of innovating: introduction of new things or methods

From a policy perspective, shouldn't our definition be:

- We have a strong desire for innovation, but we are only willing to pay a premium for those innovations with the potential to be disruptive innovators. Our policy goal is to encourage this form of innovation.

Biotechnology and Innovation

- Are current reimbursement strategies rewarding sustaining or disruptive innovators?
- Can we judge which technologies have the potential to be disruptive innovators (in advance)?
- How do current reimbursement strategies foster technology innovation?

Policy Approaches to Innovation

- Is molecular structure an innovation?
- Is the mechanism of action an innovation?
- Is mode of delivery an innovation?
- Is 'omics an innovation?
- Is therapy that alters a treatment paradigm an innovation?

Nexium®

- Nexium® sales for the full year (2006) topped **\$5 billion**, a 12% increase over preceding year



Knows they have homework.

Knows they have chores.

Knows their favorite hiding place.

Doesn't Know
acid reflux may be damaging
his esophagus.

Nexium®
(esomeprazole magnesium)

AstraZeneca

Organizational Innovation: How We Improve the Delivery of Care



**CARE Hospital
(Hyderabad,
India)**



Types of Organizational Innovation: How Business Models Evolve Around Technology

- Internal exploratory environments
- Corporate venture capital funds
- Exploratory acquisitions
- Semiautonomous business units

Technology Innovation: PHRs

HEALTH RECORD NETWORK

Log Me Out | Privacy | Preferences | Help | Search

Welcome: Aaron Miller

Home | Profile | Health Record | Family History | Doctors | Insurance

Wednesday, June 06, 2007

Important Reminders

Today is your scheduled Annual Physical with Dr. Warren Wolfe.

Your physician Dr. Warren Wolfe has provided some instructions for you to follow prior to your next appointment. Be sure to follow all of these recommendations.

Profile Summary

Aaron Miller
DOB: 06/14/1945 Age: 61
Blood Type: AB negative
Organ Donor: No

Upcoming Appointments

2007

June 08, 2007 - 10:00AM
Annual Physical
Warren Wolfe, MD
10620 Spotsylvania Ave.
Friedricksburgh, VA 24541
850-555-3355

June 25th, 2007 - 1:00PM
Dental Cleaning
Robert Baker, DDS
8545 1st St
Danville, VA 24541
434-555-4557

Recent Record Activity

No Record Activity within the last 30 days.

News & Features

Most Asthma Out of Control
Lawn Mower Injuries Preventable
Liver Cancer Pill Extends Lives
Parenthood Squashes Workout Time

Enter Your Vitals

Weight: Blood Pressure: / Pulse: Glucose:

Use: Systolic: Diastolic: bpm: mg/dl:

Stay healthy by tracking your vitals on a regular basis. Enter as many or as few of these vital statistics as you wish.

Family Members & Dependents

Name	Relationship
Lynn Miller	Spouse
Jennifer Smith	Daughter
Anthony Miller	Son

HEALTH RECORD NETWORK

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Welcome: Jason Cahill | Customize

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Wednesday, June 06, 2007

Health Record

Displaying Records 1-10 Records in History: 103

Description	Start Date	End Date	Location	Doctor	Record Number	Codes
Office visit, Follow-up	05/15/2007	05/15/2007	Wolfe Family Practice	Warren Wolfe, MD	7054957234	
Echo-Duplex, Chest Wall	12/15/2006	12/15/2006	Duke University Medical Center	James Jellis, MD	6504528452	
Cardiology Gals Dye Test	12/15/2006	12/15/2006	Duke University Medical Center	James Jellis, MD	6504528451	
Unfractionated Heparin	12/15/2006	12/15/2006	Duke University Medical Center	James Jellis, MD	6504528450	
Discharge Instructions	12/15/2006	12/15/2006	Duke University Medical Center	James Jellis, MD	5455997852	
Office visit	07/15/2006	07/15/2006	Wolfe Family Practice	Warren Wolfe, MD	4504894852	
Blood Test - Lipid Panel	05/15/2006	05/15/2006	Quest Diagnostic	Warren Wolfe, MD	4345978545	
Office visit	02/23/2006	02/23/2006	Wolfe Family Practice	Warren Wolfe, MD	3508107852	
Office visit	01/31/2006	01/31/2006	Wolfe Family Practice	Warren Wolfe, MD	3015608481	
Blood Test - Lipid Panel	11/15/2005	11/15/2005	Quest Diagnostic	Warren Wolfe, MD	2456480786	

Recent Test Results

Cholesterol (LDL/HDL)

Graph showing Cholesterol (LDL/HDL) trends over time. The graph displays Total Cholesterol (black line), LDL (red line), and HDL (blue line) values. The Y-axis ranges from 25 to 250. The X-axis shows dates from 1 to 8. The graph includes shaded regions for Total Cholesterol Desired Range, LDL Desired Range, and HDL Desired Range.

Test Results Provided by: Quest Diagnostics

Cost & Quality Pressures are Enormous & Increasing

- The easiest response is to freeze the system (and lock in the status quo); the result is likely to be disappointment since this prevents organizational innovation in the market.
- We need to better understand the role of technology and organizational innovation in the broader economy and especially in health care.
- If we believe that certain types of innovation can be a solution, we should support those efforts with strong market and policy messages.